SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division Accident and Incident Investigations Division Form Number: CA 12-57

LIMITED OCCURRENCE INVESTIGATION REPORT

Reference Number	CA18/2/3/10483						
Classification	Accident		**Date**	29 August 2024	**Time**	1000Z	
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Stellenbosch Airfield (FASH), Western Cape Province		Place of Intended Landing	Stellenbosch Airfield (FASH), Western Cape Province			
Place of Occurrence	During approach for landing on Runway 19 at Stellenbosch Airfield (FASH)						
GPS Co-ordinates	Latitude	33°58'45.70" S	Longitude	18°49'19.20" E	Elevation	290 ft	
Aircraft Information							
Registration	ZU-MAP						
Make; Model; S/N	Aeroprakt (Serial Number: 076)						
Damage to Aircraft	Substantial		Total Aircraft Hours	2484.7			
Pilot-in-command							
Licence Type	Private Pilot Licence (PPL)		Gender	Male	Age	44	
Licence Valid	Yes	Total Hours	129.3	Total Hours on Type	47.5		
Total Hours Past 30 Days	1.8		Total Flying Hours on Type Past 90 Days	15.5			
People On-board	1 + 1	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday, 29 August 2024, a pilot and a passenger on-board an Aeroprakt aircraft with registration ZU-MAP took off on a private flight from Stellenbosch Airfield (FASH) in the Western Cape province with the intention to land back at the same airfield. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that they took off and routed to Franschhoek via Paarl before they returned to FASH. During approach for landing on Runway 19 at FASH, the airspeed was 60 knots (kts), and the flaps were set at 10-degrees. The aircraft touched down with the main landing gear and ballooned, whereafter the nose wheel dug into the mud and collapsed (broke). The aircraft nosed over and rested (inverted) on the left side of Runway 19. The occupants were not injured. The aircraft sustained substantial damage to the nose wheel, wings and tail section.

Figure 1: Aerial view of the accident site. (Source: Google Earth)

Figure 2: The aircraft as it came to rest after the accident. (Source: Pilot)

The following weather information was obtained from the South African Weather Services (SAWS), recorded at Cape Town International Airport (FACT) on 29 August 2024. FACT is situated 37 kilometres (km) from FASH.

Wind Direction	170° 140V210	Wind Speed	11kts	Visibility	9999m
Temperature	13°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	02°C	QNH	1034hPa		

Ballooned Landing (*Extract from The Airplane Flying Manual [FAA-H-8083-3C] Approaches and Landings).*

A ballooned landing is an aerodynamically induced vertical departure (climb) away from the runway usually caused by a pilot attempting to land with excess air speed. At higher airspeeds, a longer period of time is required to "wash off" the airspeed (float) which increases the risk for the aircraft to climb away or lift off again from the runway.

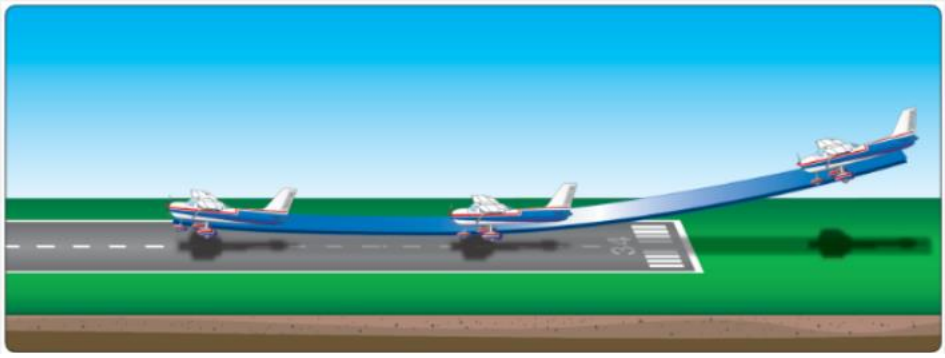

Illustration 1: Excess airspeed and floating.
(Source: FAA-H-8083-3C)

Mis-timed and excessive nose-up elevator control inputs during the round-out or hold-off at an excessive air speed will likely cause the aircraft to climb. A sudden increase in head-wind component (a gust) could be the initial cause for a ballooned landing; however, excess air speed is required, and incorrect pilot control inputs will increase severity.

During the ballooning, climb airspeed is lost, the lift decreases, and the aircraft may enter a state where there is insufficient air speed to effectively maintain control of the aircraft's descent back to the runway, resulting in a hard landing. Attempting to control the balloon with the elevator may lead to the pilot "overcontrolling" and causing the aircraft to nose into the runway or into a series of swoops and dives called Pilot Induced Oscillation (PIO).
Managing a ballooned landing requires perfectly timed and precise control inputs. The safest option is to go-around because an incorrectly managed balloon could lead to a hard, bounced or porpoise landing.

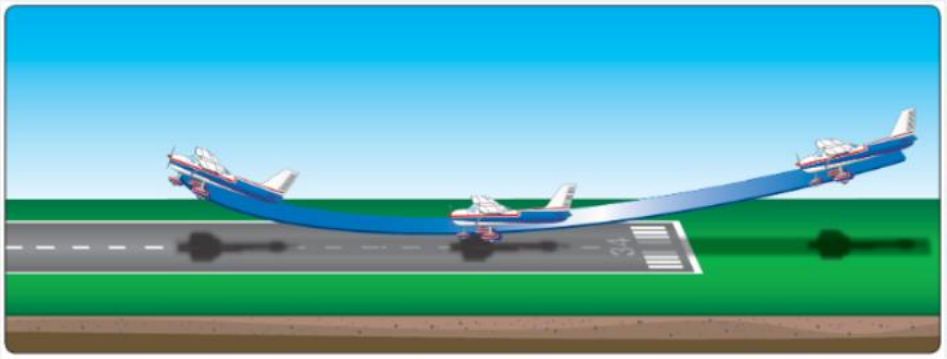

Illustration 2: Balloon landing.
(Source: FAA-H-8083-3C)

Findings

1. The pilot was initially issued a Private Pilot Licence (PPL) by the Regulator (SACAA) on 20 June 2023. The latest PPL was reissued on 18 June 2024 with an expiry date of 30 June 2026. The pilot had flown a total of 129.3 hours of which 47.5 hours were acquired on the aircraft type. The pilot had the aircraft type endorsed on his licence.

2. The pilot had a valid Class 2 aviation medical certificate that was issued on 7 March 2023 with an expiry date of 31 March 2025.

3. The aircraft's Certificate of Registration (C of R) was issued to the current owner on 19 June 2019.

4. The aircraft had a valid Authority-to-fly (ATF) Certificate that was issued by the Regulator on 24 June 2024 with an expiry date of 31 July 2025.

5. The aircraft was issued a Certificate of Release to Service (CRS) on 20 August 2024 at 2478.2 hours with an expiry date of 19 August 2025 or at 2578.20 hours, whichever occurs first. There were no defects recorded in the flight folio at the time of the flight.

Probable Cause

The aircraft ballooned after landing, likely due to excessive nose-up elevator control inputs during the round-out which resulted in an aircraft coming to rest in an inverted position.

Contributing Factor

None.

Safety Action(s)

None.

Safety Message

None.

About this Report

The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Purpose

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

Disclaimer

This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa